
Stockholm 5G base station power consumption measurement and detection

What is the energy consumption of a 5G network?

The energy consumption of 5G networks is one of the pressing concerns in green communications. Recent research is focused towards energy saving techniques of base stations (BSs). BSs are one of the most power consuming elements of a 5G network. It is important to model their energy consumption for analyzing overall energy efficiency of a network.

Is 5G base station power consumption accurate?

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Abstract--The energy consumption of the fifth generation (5G) of mobile networks is one of the major concerns of the telecom industry. However, there is not currently an accurate and tractable approach to evaluate 5G base stations (BSs) power consumption. In this article, we pr

Should power consumption models be used in 5G networks?

This restricts the potential use of the power models, as their validity and accuracy remain unclear. Future work includes the further development of the power consumption models to form a unified evaluation framework that enables the quantification and optimization of energy consumption and energy efficiency of 5G networks.

Does a balanced dataset improve energy prediction of 5G base stations?

For energy prediction of 5G base stations, this thesis finds that using a more balanced dataset, in terms of the number of samples for each product, has a positive impact for the ANN and the Gradient Boosted Trees model while the linear regression performs worse.

By analyzing the characteristics of 5G base station energy use and supervisory requirements, the overall architecture and key modules of the platform are designed. The ...

To defend against a Sybil-capable fake base station, we use a history-reputation-based link routing scheme for routing and base station ...

An energy consumption optimization strategy of 5G base stations (BSs) considering variable threshold sleep mechanism (ECOS-BS) is proposed, which includes the initial ...

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At present, 5G mobile traffic base stations in energy consumption accounted for 60% ~ 80%, compared with 4G energy consumption increased three times. In the future, high ...

This paper proposes a novel 5G base stations energy consumption modelling method by learning from a real-world dataset used in the ITU 5G Base Station Energy ...

Mathematical optimization of energy consumption requires a model of the problem at hand. In this thesis linear regression is compared with the gradient boosted trees method and a neural ...

This paper conducts a literature survey of relevant power consumption models for 5G cellular network base stations and provides a comparison of the models. It highlights ...

In 5G communications, base stations are large power consumers, and about 80% of energy consumption comes from widely dispersed base stations. It is predicted that by ...

Notably, the power consumption of a gNB is very high, up to 3-4 times of the power consumption of a 4G base stations (BSs). The substantial quantity, rapid growth rate, and high ...

TS 103 786 - V1.2.1 - Environmental Engineering (EE); Measurement method for energy efficiency of wireless access network equipment; Dynamic energy efficiency ...

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